RECLAMATION
Managing Water in the West

U.S. Department of the Interior
Bureau of Reclamation

— *Comment Card* —

COMMENTS DUE BY WEDNESDAY, FEBRUARY 28, 2007

PLEASE PRINT

Date: _____

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The Bureau of Reclamation is seeking public comment on the adoption of a Long-Term Experimental Plan for the future operation of Glen Canyon Dam and other associated management activities. Your input on the scope of the project and the issues and alternatives that should be analyzed is greatly appreciated. Please write legibly.

Please remove me from your mailing list

Carole Waller

Please submit your comments in the space provided, fold the card in half, tape the edges, and mail the completed card back to:
Regional Director, Bureau of Reclamation, Upper Colorado Region, Attention: UC-402, 125 South State Street, Salt Lake City, Utah 84138-1147.
Comments must be received by February 28, 2007.

From: "Carolyn Bree" <breebreaker@hotmail.com>
To: <GCDExpPlan@uc.usbr.gov>
Date: Tue, Feb 27, 2007 5:40 PM
Subject: Addressing the Colorado River Ecosystem

To Whom It Concerns,

After visiting the Grand Canyon last year, I am writing you to look at the Colorado River System, especially in the Grand Canyon area. It deserves a better future. Help restore the flow regime that transports nutrients down the river. Also establish a restore and recover program for the Colroado River corridor in the Grand Canyon, which would include recovery of native fish.

I believe that natural lands and land formations need to be protected for the native peoples who have honored those areas and also for future generations to enjoy.

Sincerely,

Carolyn Bree
Waterford, MI

GCDExpPlan GCDExpPlan - EIS

From: "Carolyn Harlan" <charlan46@hotmail.com>
To: <GCDExpPlan@uc.usbr.gov>
Date: 2/24/2007 9:19:30 AM
Subject: EIS

how many more “EIS’s” will it take to satisfy the drainers? The answer is infinity. Why do we continue to send good money after bad to satisfy these people, who will never be satisfied? Glen Canyon Dam is there, it should stay there and if the river has changed as a result, so be it. Such is nature; things have changed and evolved on the Colorado river for eons and will cycle afer we are long gone.

At this point I would rather see Rainbow Trout on the lower Colorado than the chub. Having gone down the River on a rafting trip, I'm not convinced the Chub is in as much danger as the drainers would have everyone believe, they are there, we saw them. Far more were killed in the last experimental flood when they were washed down to Lake Mead than are killed by living in colder river water.... but, as I said above species evolve, adapt or something stronger takes over.

This is all about creating more environmental jobs in Flagstaff for the drainer community and having the Colorado to themselves for private trips than it is about saving the Chub. It's also about these groups having nice, large sandy beaches than it is realizing we are in a drought and we need to preserve as much water as possible in Lake Powell to see us through this drought... not to mention the wasted energy from the floods.

I do agree if silt from Lake Powell could be moved below the dam that would be a good thing, but to run warmer water in the river to satisfy the Chub over the Trout is a huge mistake.

Regards,

Carolyn Harlan

Lake Havasu City, AZ 86403

From: "R/C Southwick" <RSouthwick@ShamanProducts.com>
To: <GCDExpPlan@uc.usbr.gov>
Date: Wed, Feb 28, 2007 2:39 PM
Subject: Glen Canyon LTEP response private boater

Mr. Rick Gold
Regional Director, Bureau of Reclamation
Upper Colorado Region
Attn: UC-402
125 South State Street
Salt Lake City, Utah 84138-1147

Via email: GCDExpPlan@uc.usbr.gov

Attatched above is my response to the Glen Canyon LTEP for your consideration.

Thanks for reading it and giving it some consideration.

Sincerely and respectfully submitted,

Celia Southwick

February 27, 2007

Mr. Rick Gold
Regional Director, Bureau of Reclamation
Upper Colorado Region
Attn: UC-402
125 South State Street
Salt Lake City, Utah 84138-1147
Via email: GCDExpPlan@uc.usbr.gov

Glen Canyon Dam Experimental Flow Management

Thank you for your time and the opportunity for input into this process. Yours is a difficult job of managing things that have been set in place by others before you. Still you must make choices and decisions based on all the available input from many resources and hopefully it can be done with informative scientific reason, wisdom and common sense and with an interest in the outcome of the River as a viable resource for so much!

The resources of the Colorado River in the Grand Canyon below Glen Canyon dam are at risk and need to be managed as much as possible to Protect the Canyon, save species and/or rebuild beaches and beach habitat, and anthropological sites, among some of the management issues. It seems to me that the Canyon has been researched to death nearly and that you already have results that show high flow releases flush out the beaches unless done when there is sediment in the river from flashing side tributaries/canyons (since there is no longer sediment coming down from the main source due to the dam's presence).

I do not think you can afford to loose more resources because you want to experiment with the flows.
The last big release was NOT done in conjunction with high sediment but just a predetermined date to run a flush thru! That seems crazy when you already know what happens to the beaches. That year the sediment was high in Nov 2004 and the flush not done until early 2005. There happened to be some sediment in the river and while some beaches were built others were decimated!

Within the last few years alone there has been significant degradation and loss of beaches as seen in my last 10 years of boating and over 25 trips down the Canyon. Some experimental high flows have added significantly to the degradation of beaches and sand, whether beaches at campsite areas or along the river corridor where sheep and other animals come down for water or grasses or the beaver whose home was flushed out of the banks and were struggling to stay together as a family and find a place to relocate (mountain lions came down to find "free" lunch w/ displaced beavers in search of a new home....). I would not like to outline all the distasteful results of or types of research being done.....in the name of the canyon. On one flow regime of 5-20,000 CFS each day as the water went down each day the residual water in the sands/beaches drained down

taking with it additional sand leaving rivulets and gullies that are not normally a daily creation!

Management of one resource (flushes for endangered species) at the expense of another (loss of beaches and beach habitat for other wildlife) does not seem to be a prudent way to continue experimenting. As long as the dam and lake are there perhaps the choices of water temperature and seasonal flows are less easily done. Seasonal flows are perhaps not so "time" specific as "weather" specific (high rains/flashes).

There is plenty of science data that has been collected and that information along with some common sense on the matter seems to be enough prudent data to perhaps dictate dam management and flow releases, in spite of the complicated resource management issues, not the least of which is man and the need for water/power.

I do not know if there is a way to re-deliver sediment from upper lake areas in a reasonable manner (both logistically and economically) but would hope that it has been considered.

With river runners and hikers in the corridor perhaps you have felt the need to "set a date" for the flushes/high flows but in point of fact we could simply be aware that such a thing could occur and have a relative idea of what flows to expect changes in when we are down there and the rains come and canyons are flashing (which in itself brings up the flows). We have been down there when a scheduled flush occurred and it was manageable and until then, it was clear weather and water (so would not have anticipated it unless it was a scheduled date/time). We have been there when the rains came and the water was dense w/ sediment from side flashes and that would have been easy to "be prepared" for a dam release in addition to the increased flow from weather. It is not a "wall" of water and so some guidelines might be established to act spontaneously when weather dictates an advantage for a release.

While the Dam Managers are not directly connected to the research in the corridor, the research HAS dictated some of that flow regime and does affect all. The research per se may also be over handling of species to count and add counters to fish et. al. and that impact alone could serve as a stressor to species already endangered from other natural factor disruptions. It is not OK to introduce species for one purpose (fishing industry) and then later go thru massive shock and kill routines. I observed on the San Juan during a flood stage period fish that had been shocked for counting or whatever...then released but did not recover.... Swimming/laying in shallows where the water went down and they were alive trying to breathe out of water, barely alive and some dead! Not good karma! Not all recover from that shock system!
Use of the motorized craft for research purposes on a river that is wilderness is also objectionable! The very people who should most be concerned with preserving that wilderness aspect "justify" the use.

This is a non scientific letter and perhaps not listing the "talking points" in a fashion that is easily responded too but I feel compelled to give a point of view that I would hope you

give consideration to, not for myself but for the River and the Canyon and those critters that have lived there both before and post dam. I would like to think that you give serious consideration to the impact of your experimental flow releases and dam management issues in a responsible and ethical way and that special interests outside of this realm do not dictate the destruction but rather can work for and with the protection of an incredibly beautiful river and canyon with rich history and wildlife that are dependent on it now and in the future as they have been in the past. This is about many people and agencies working together, managing water, electrical power, commercial and private entities and businesses – we can not have all the water we want, all the power demanded ad infinitum. We live in a desert and have droughts and limited resources. Cutbacks and more efficient use on those demands should be considered.

I love the canyon and love the opportunities that I have had to see and experience much of what the Canyon has to offer. I can only hope that future generations will have this opportunity to see such a Grand place and that it resources will remain a part of the future of this river – the Colorado of the Grand Canyon. It has so much to offer on all levels. Protect it and Restore it where possible!

Respectly, Very respectfully submitted,

Celia Southwick
Boater
Lover of the Canyon
Outdoors person
Biologist
Person who Cares about the Rivers and their management for all living things

From: "Estes, Charlene" <charlene.estes@sos.mo.gov>
To: <GCDExpPlan@uc.usbr.gov>
Date: Wed, Feb 21, 2007 3:19 PM
Subject: Comments on Glen Canyon Dam EIS

Dear Mr. Gold:

Thank you for allowing us the opportunity to submit comments for the Environmental Impact Statement on the Long-term Operations for the Future Operation's of Glen Canyon Dam. Studies completed in 1996 by the Bureau of Reclamation and other Federal, State, Tribal and academic entities documented that the river ecosystem has been significantly impacted since 1956 due to the operations of Glen Canyon Dam. The 1996 Record of Decision and the Grand Canyon Protection Act promised that the river environment of the Grand Canyon would improve. Unfortunately we continue to see a decline in the ecological integrity of the river system.

It is unclear from the information presented in the scoping meetings how the implementation of the Long-term operations plan will remedy or rectify the situation that exists today. The new plans for ongoing investigation and experimentation may be beneficial for gathering new data however it is unclear how this information will be integrated and implemented into changes in the Glen Canyon Dam operations that will allow for listed fish species to recover.

The following comments should be implemented in order to allow for a future in the Grand Canyon that meets the requirements of the Grand Canyon Protection Act.

1. Restructure the Focus of the EIS on Native Fish Recovery.

Of the four endangered fish species that historically existed in the Grand Canyon, only the humpback chub remains. Three of the native listed fish species have been extirpated from the Grand Canyon and the humpback chub remains however population numbers have dropped to perilously low levels. When evaluating the long-term experimental plan for the future operations at Glen Canyon Dam it is important that the information learned be applied to protecting and restoring the species and habitats in the Grand Canyon. It is clear from data collected by the Grand Canyon Monitoring and Research Center that continuing operation business as usual will continue to lead to negative impacts in the Grand Canyon. Therefore it is recommended that a new suite of operation options be included in the review in the EIS:

* An evaluation of a natural flow regime operation scenario.
* The implementation and re-establishment of a water temperature regime consistent with seasonal temperature variation for the Colorado River in Grand Canyon.
* The implementation and re-establishment of seasonal sediment inputs into Grand Canyon at a level that would provide cover for native fish and provide for the build up of sands and silts necessary for building beaches and backwater habitats.
* Aggressive non-native species control including plants, birds, and fish.

2. Impacts on Lake Powell and Glen Canyon

The anticipated management of the Colorado River includes a large probability that flow regimes will be reduced due to reduced snowpack and lowered runoff volume. This probability should be acknowledged in the EIS and addressed through alternative scenarios for evaluation of the impacts to the Grand Canyon environment. Changes in the operations of Glen Canyon Dam will have a direct and immediate impact on flow patterns. The long-term monitoring plan should address how this potential will be addressed. Specific recommendations include:

* Identify potential flow regimes that may occur as a result of changing drought operation patterns at Glen Canyon Dam.
* Identify potential changes in the elevation levels of Lake Powell and how this will potentially impact the limnological conditions in the reservoir and the resulting quantity and quality of releases to the Grand Canyon.

3. Long-Term Experimental Plan

The long term should provide the basis for each scientific study that is to be conducted in the Grand Canyon and in Lake Powell. Special interest science can be as bad as special interest decisions in that critical research and data collection is not collected, often at the loss of more important information. Specific actions that should be included in the EIS include:

* Is the USGS the appropriate entity to run the science program in the Grand Canyon?
* Identification and priority of research. It should be inherently clear and transparent as to how specific science programs are agreed to and the process to get timely data to decision-makers.
* Adequacy of support to Native American tribes in protecting their resources in the Grand Canyon.

4. Adaptive Management Program

The Glen Canyon Dam Adaptive Management Program was administratively initiated when the Record of Decision was signed by Secretary of Interior Babbitt in the fall of 1996. The intent of the program was to build on the success of the Glen Canyon Environmental Studies and to more fully integrate operational decisions at the dam with the increasing scientific information. In October 2005 the U.S. Geological Survey's SCORE report on the success of the Adaptive Management Program was reviewed. The SCORE review did not reflect favorably on the Adaptive Management Program IF the intent was to meet the requirements of the Grand Canyon Protection Act and the intent of the EIS.

Of concern with the Adoption of a Long-Term Experimental Plan for the Future Operations of Glen Canyon Dam is that it appears that the SCORE report has not been taken into consideration or actions to resolve some of the primary scientific issues identified. The current set up of the Science Program and identified review process does not take into consideration that we cannot continue business as usual if we are to meet the requirements of the Grand Canyon Protection Act and the recovery of species and their habitats in the Grand Canyon.

The EIS scope should include the following:

* An independent review of the existing Adaptive Management Program with recommendations of actions necessary to make it more effective.
* A review of the current peer-review process and Scientific Advisory Program. The concept of "conflict of interest" should be addressed to the program head and the group involved in the review.
* A revision of the membership organization for the Adaptive Management Program to provide balance between development and management interests and conservation interests. The current organization is unfairly tipped in the favor of water and power special interest groups.

The Grand Canyon Protection Act (1992) and the initial EIS on Glen Canyon Dam in 1996 provided a great opportunity for Reclamation to step forward and be a leader in the management of the Colorado River. The past ten years have not provided the information or the process that was envisioned in 1996 and needs to be reviewed and revised in the current EIS process.

Thank you for consideration of these comments.

Charlene Estes

Missouri Office of the Secretary of State

Information Technology Services Division

600 W. Main St. Rm 367

Jefferson City, MO 65101

Phone: 573-522-2445

Fax: 573-522-9947

Email: Charlene.Estes@sos.mo.gov

"We are here to help...just ask!"

RECLAMATION
Managing Water in the West

U.S. Department of the Interior
Bureau of Reclamation

— Comment C

COMMENTS DUE BY WEDNESDAY, FEBRUARY 28, 2007

PLEASE PRINT

Date: January 17, 2007

Name: Charles Iossi Title (if applicable) :

Telephone: Fax:

Organization/Business (if applicable): E-Mail: Cmiossi@earthlink.net

Address: 36 Erin Ln,

City: Half Moon Bay State: CA Zip: 94019

☐ Yes, I would like to be added to your mailing list: E-Mail ☐ US Mail ☐

The Bureau of Reclamation is seeking public comment on the adoption of a Long-Term Experimental Plan for the future operation of Glen Canyon Dam and other associated management activities. Your input on the scope of the project and the issues and alternatives that should be analyzed is greatly appreciated. Please write legibly.

I support the continued use of the waters below Glen Canyon Dam as a trout fishery.

Please submit your comments in the space provided, fold the card in half, tape the edges, and mail the completed card back to:
Regional Director, Bureau of Reclamation, Upper Colorado Region, Attention: UC-402, 125 South State Street, Salt Lake City, Utah 84138-1147.
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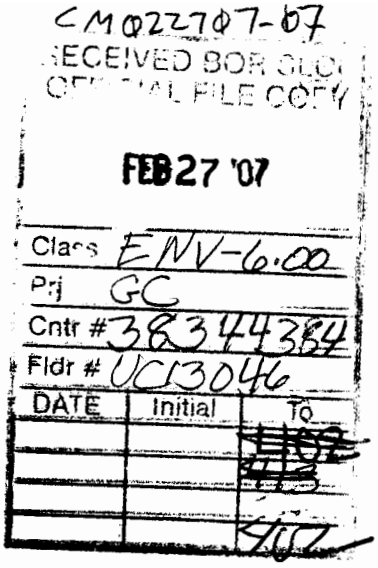
ORIGINAL



February 22, 2007

Mr. Rick Gold
Regional Director
Bureau of Reclamation
Upper Colorado Region
Attn: UC-402
125 South State Street
Salt Lake City, UT 84138-1147

Subject: Comments on Glen Canyon Dam EIS

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Thank you for consideration of these comments.

Sincerely,

Charles M. Ewing
cmewing@jhmi.edu

From: "Chris Valiante" <chris@twentytwodesigns.com>
To: <GCDExpPlan@uc.usbr.gov>
Date: Thu, Dec 14, 2006 1:46 PM
Subject: GCD Comment

I support the view that the river should be managed to reflect as closely as possible the natural, pre-dam flows on the Colorado through the Grand Canyon. It is the Grand Canyon after all.

Thank you,

Chris Valiante

TwentyTwo Designs

twentytwodesigns.com <http://www.twentytwodesigns.com/>

(208) 354-0553

(866) 733-0553 toll-free

(208) 354-0554 fax

335 N. 5th East

Driggs, ID 83422

Department of Energy
Western Area Power Administration
CRSP Management Center
150 Social Hall Avenue, Suite 300
Salt Lake City, Utah 84111

Mr. Rick Gold
Regional Director, Bureau of Reclamation
Upper Colorado Region
Attn: UC-402
125 South State Street
Salt Lake City, Utah 84138-1147

Subject: Comments by Western Area Power Administration Regarding the Scope of the EIS on the Long Term Experimental Plan (LTEP EIS)

Dear Mr. Gold:

We appreciate the opportunity of commenting on the subject EIS. We appreciate being afforded cooperating agency status on this EIS. As a cooperator we look forward to discussing the scope of the LTEP EIS with you and the other cooperating agencies. In order to facilitate this discussion, we believe it would be helpful to articulate our position regarding the EIS scope.

Western Background:

Western Area Power Administration (Western) was established in 1977 pursuant to the Department of Energy Organization Act. Western is one of five Power Marketing Administrations (PMAs) created to market hydropower generated by federally-owned, multiple-purpose hydroelectric facilities such as the Colorado River Storage Project (CRSP). Western is responsible for marketing and transmission of Federal electric power in 15 central and western states. Electric power marketed by Western is generated largely by Reclamation, the U.S. Army Corps of Engineers, and the International Boundary and Water Commission.

There are approximately 233 Western customers who purchase wholesale electricity from the Colorado River Storage Project (CRSP). Electrical power from the CRSP generally serves the rural areas and small towns of the Rocky Mountain, Colorado Plateau, and Great Basin regions of the West. The CRSP marketing area includes parts of the states of Wyoming, Utah, Nevada, Arizona, New Mexico, Colorado and Nebraska.

The CRSP Management Center markets Federal power generated by the CRSP, including participating projects of the CRSP—the Rio Grande, Collbran, Falcon, and Amistad Projects. Hydoelectrical power production at Glen Canyon Dam (GCD) represents approximately 75% of all CRSP electrical production. It also generates most of the revenues necessary to repay CRSP obligations to the U.S. Treasure contemplated by the CRSP Act.

Western's Involvement in CRSP Operations

Regulation: Western is charged with regulating the CRSP control area, electrical system, and frequency. Regulation Control means the use of automatic generation control to adjust the power output of electric generators[1] within a prescribed area[2] in response to changes in the system frequency[3], time error, and tie-line loading, so as to maintain the scheduled level of generation in accordance with prescribed NERC[4] criteria. This can result in instantaneous changes in the CRSP generation in support of system frequency and time error control. Regulation Control is used at CRSP as a real-time-computer-driven change to the hourly schedule. These changes occur many times during the hour are both positive and negative in relation to the schedule. The resulting output from CRSP generators is an envelope of generation swings which are frequent though small in magnitude.

In order to facilitate Western's regulation requirements, Western and Reclamation

[1] Electrical Regulation is the amount of operating reserve capacity required by the control area operator. This is sometimes referred to as Regulating Capacity.

[2] Control area is an electric power system or combination of electric power systems, bounded by interconnection metering and telemetry, to which a common automatic control scheme is applied.

[3] Regulated Frequency is frequency which, over a period of time, is regulated to maintain the average frequency at some predetermined value.

[4] North American Electric Reliability Council

entered into an interagency agreement in 1997 regarding operation of CRSP. Section 8 prescribes the agreement in regulating releases.

> 8.1 The Parties agree and recognize that Regulation Control is an essential part of operations and is required under all circumstances. Adequate generation for regulation purposes will be provided **at Glen Canyon Dam** and **also may be provided at other CRSP facilities pursuant to power system operation practices**, and generation will be measured as an Average Integrated Value Across the Hour.
>
> 8.2 **Western will determine which CRSP plants will be placed on Regulation Control by Reclamation**, taking into consideration sufficient water and associated generation that must be made available to maintain control area needs on an hourly basis. Western and Reclamation will consult as needed on water and plant availability. [*emphasis added*]

A Supervisory Control and Data Acquisition (SCADA) system allows automated control of the electrical system in order to better maintain regulation standards. The SCADA system is operated by Western's dispatch center out of the Desert Southwest Regional Office (DSW). Reclamation maintains its own SCADA system at Glen Canyon Dam and the other CRSP units. Every four seconds, DSW transmits, via microwave, the digital SCADA schedule to Glen Canyon Dam, which is then transmitted to all the CRSP units.

CRSP Power Scheduling: Reclamation operates the CRSP units to generate power according to an agreed-upon schedule with Western, which Western then markets to its customers. In order to accomplish the Regulation Control outlined in the interagency agreement, Western prepares a schedule using Reclamation's 24-month study. Reclamation produces a 24-month study using its hydrologic model RiverWare, which incorporates forecasted inflows, reservoir storage and elevation and dam safety constraints. The 24-month study reports 12 months of actual power releases, bypass releases, end of month (EOM) storage capacity and forebay (reservoir elevation), along with reporting the predicted values for the next 12 months. Western uses daily volume in a power optimization model that distributes it hourly throughout the week to optimize energy from water released. Western's optimized energy schedule is input into the SCADA system and implemented at the CRSP units. Reclamation is notified of the schedule in advance in order to assure compliance with its authorized purposes.

Emergency Regulation**:** The interagency agreement also sets forth the criteria for responding to emergency electrical situations. If an emergency occurs either to the CRSP system or other interconnected systems, Western immediately alters CRSP powerplant unit operations to respond. Under emergency operations, generation will be restored as soon as possible. Western informs Reclamation of operational changes in emergency situations after operational changes have occurred. Further, if the emergency operations will continue for more than hour, only then will Western dispatchers and Reclamation operators consult with each other and with others as appropriate.

Western's Financial Involvement in CRSP Facilities Operation and in CRSP Environmental Programs**:** CRSP power marketing revenues fund the majority of the costs of the environmental programs that include, but are not limited to: Glen Canyon Dam

Adaptive Management Program; Upper Colorado River Basin Recovery Implementation Program; and salinity control programs. Moreover, the operation at the Glen Canyon Dam powerplant can have an effect on Western's firm power rates, Western's ability to make repayment of the federal investment in the CRSP and on Western's ability to maintain sufficient power revenues in the CRSP Basin Fund and, therefore, to Western and Reclamation's ability to operate and maintain the CRSP system.

Scoping Comments:

1. The LTEP EIS Must Strive to Achieve a "Balance" of Environmental Resources as Described in the Glen Canyon Dam EIS (1996) [5]

Background: The Grand Canyon Protection Act of 1992 (GCPA) requires that the Secretary [of the U.S. Department of Interior] operate Glen Canyon Dam "in such a manner as to protect, mitigate adverse impacts to, and improve the values for which Grand Canyon National Park and Glen Canyon National Recreation Area were established, . . ."[6]. This, he is required to accomplish "in compliance with existing law"[7].

The preferred alternative, Record of Decision and subsequent operating criteria developed by Secretary are the Secretary's compliance with this law: "These Operating Criteria are promulgated in compliance with section 1804 of Public Law 102-575, the Grand Canyon Protection Act of 1992." [8]

The selection of this alternative was intended to achieve an appropriate "balance," so that the operation of Glen Canyon Dam would conform to the direction given in the GCPA while remaining in compliance with other legal mandates; ". . . to balance competing interests and to meet statutory responsibilities for protecting downstream resources and producing hydropower . . ."[9]. The concept of "balance" was integral to the selection of this alternative and is repeated in several related documents: "The goal of selecting a preferred alternative was not to maximize benefits for the most resources, but rather to find an alterative dam operating plan that would permit recovery and long-term sustainability of downstream resources while limiting hydropower capability and flexibility ***only to the extent necessary*** to achieve recovery and long-term sustainability." (*emphasis added*).[10] Also: "The Low and Modified Low Fluctuating Flow Alternative offer approaches to achieving a balance between enhancing benefits to natural resources and reducing impact to hydropower."[11]

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[5] Operation of Glen Canyon Dam Final Environmental Impact Statement, U.S. Department of the Interior/Bureau of Reclamation, March 1995

[6] Grand Canyon Protection Act of 1992, Sec. 1802 (a)

[7] Ibid, Sec. 1802 9 (b)

[8] Operating Criteria for Glen Canyon Dam In accordance with the Grand Canyon Protection Act of 1992, signed February 24, 1997, page 1.

[9] Record of Decision, Operation of Glen Canyon Dam Final Environmental Impact Statement, page 1.

[10] Ibid, Section VII. Basis for Decision

[11] Operation of Glen Canyon Dam, Final Environmental Impact Statement, March, 1995, page 57.

It seems clear to Western that the scope of the LTEP EIS is to meet the requirements of the GCPA while preserving the "balance" of resource improvements and impacts described for the MLFF in the GCD EIS. It also seems clear that Reclamation's EIS should react to new information and recommend to the Secretary changes in dam operations and other actions that are likely to provide benefits to key resources such as HBC and sediment and have minimal additional impact to hydropower. Further:

- since expensive restrictions on operations at GCD have not brought about the anticipated improvements to one or more key resources, such restrictions should be relaxed, to the extent possible that such relaxation doesn't severely compromise benefits to trout, aquatic food base and other resources that have improved under the MLFF,
- since non-flow actions are likely to provide benefits to HBC, they should be the focus of a comprehensive, long-term experiment, with flows that are compatible[12] with HBC recovery and consistent with the "balance" issue,
- "learning" and establishing cause and effect relationships should be incidental to sincere attempts by the Secretary to meet the requirements of the GCPA and other legal mandates. Scientific analysis will assist the AMWG in keeping abreast of the state of the Grand Canyon resources and in recommending appropriate actions and experiments to the Secretary. However, the seminal charge of the AMWG is to make recommendations that improve the status of natural resources, as well as hydroelectric power, not to provide for or create a field laboratory for scientific experimentation.

Further Restrictions on Power Not Compatible With "Balance:" In line with our recommendation that the LTEP EIS be limited in scope to achieving a "balance" of resource benefits sought by the Secretary of Interior and described in the GCD EIS, we believe that the alternatives should be developed with the aim of achieving this balance. Alternatives that include significant additional restrictions on electrical power production from the Glen Canyon Powerplant should, on their face, be considered out of scope.

To bring home this point, the GCD EIS anticipated an improvement in all downstream environmental resources as a result of MLFF. Of the 28 non-power resources analyzed in the GCD EIS, all were expected to increase in abundance or quality[13]. In compliance with law, it anticipated no change to the ability of Lake Powell to store water or to Reclamation's ability to deliver water to the Lower Basin. The only resource anticipated to suffer a negative impact was electrical power. Therefore, the LTEP alternatives considered should be fashioned so as to meet the "balance" concept while attempting to improve, or at the very least not create further restrictions on electrical power generation.

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[12] The GCD EIS acknowledged that HBC recovery would not be strictly a matter of flows: ". . . dam operations alone cannot meet some objectives for endangered fish over the long term." And "It may not be possible to accomplish these objectives for some native fish under any of the alternatives without adopting other measures [such as selective withdrawal]." Operation of Glen Canyon Dam Final Environmental Impact Statement, March, 1995, page 57.

[13] MLFF environmental impacts are summarized on Table II-7 (GCD – EIS). The sole exception to the "potential improvement' or "potential increase" is emergent marsh plants in the new high water zone.

Cumulative Actions at the Glen Canyon, Flaming Gorge and Aspinall Powerplants: This point is made even more compelling when one considers that the operation of the Glen Canyon Powerplant is not the only recent case within the CRSP power system for which the environmental improvement has been proposed by impacting electrical power generation, while maintaining the water storage and delivery functions of the dams. Recently, an EIS was completed on the operation of Flaming Gorge Dam for the benefit of downstream endangered fish species. Further, operational changes are proposed at the Aspinall Units to operate these units in a way that is beneficial to endangered fish species. The LTEP EIS should develop alternatives in light of recent past and anticipated future actions and how these actions cumulatively impact CRSP electrical power generation.

2. The LTEP EIS Should be Focused on Key Environmental Resources That Have Not Responded as Expected to MLFF While Keeping the GCD EIS "Balance"

Since the implementation of new Glen Canyon Dam (GCD) operating criteria, significant new and contrary scientific information has come to light. Analysis presented to the Adaptive Management Working Group (AMWG) concludes that the anticipated benefits to endangered fish species and the sediment resource from the Modified Low Fluctuating Flows (MLFF) have not been achieved. In fact, the sediment paradigm which was proffered in the original EIS was determined to be invalid. This was important news to the AMWG and initiated the development of a humpback chub (HBC) comprehensive plan, experimental flows and discussions regarding a long-term experimental plan (LTEP).

3. The LTEP EIS Should Include, Within it's Scope Both Flows from the GCD and Other "Non-Flow" Actions

Western believes that a long-term experimental program will only succeed if it is designed to take an opportunistic approach; e.g. take advantage of drought years, limited or excessive water availability, seasonal sediment input, and changes in resources being monitored.

For those important areas relating to sediment and HBC for which recent scientific analysis can shed little or no knowledge, there should be a research plan using "mini-experiments" (limited time frame and limited targets). These "mini-experiments" should also address "flow and non-flow" management actions. Regarding the "flow" related experiments, these should address the operating criteria implemented in 1997 (e.g. what is the effect of the "down ramp," the "up ramp," the "maximum daily change").
Temperature Control Device: One of the non-flow actions would be the construction of a temperature control device or selective withdrawal structure. This would increase water temperatures which would advantage HBC. We support the construction of such a device in order to improve the status of HBC in the Grand Canyon, and it should be identified in the EIS as a non-flow action. According to the Knowledge Assessment (2006), "The mainstem spawning and incubation performance measure represents the conditions that promote spawning and the quality of incubation environments prior to larvae becoming free-swimming fish. **Water temperature is the key management action expected to improve spawning and incubation for native fish,** while the extent of daily fluctuations in flows was considered the key determinant for rainbow trout in Glen Canyon (*emphasis added*)." This document also supports warming to reduce shock for the young-of-year, "**Increased water temperature is known to increase growth rates of juvenile native**

fish and reduce thermal shock for YoY immigrating from the LCR into the mainstem (Valdez and Carothers, 1998). Increased temperatures will increase metabolic demand. Thermal optimum for trout is less than those for native fish but higher than normal GCD release temperatures. Increased temperatures combined with sufficient food availability would improve growth rates. (*emphasis added*)."

Avoidance of Jeopardy of the Continued Existence of HBC to Extend the Goal of These Alternatives to Recovery: Reclamation's responsibility, under the Endangered Species Act regarding the operation of the CRSP units is to ***avoid jeopardy*** to listed species. Reclamation can use its authorities, in tandem with the authorities of other DOI agencies, to meet obligation under Section 7 (1A) of the ESA by adding funding for non-flow conservation actions and by working in tandem with other DOI and State agencies and others toward recovery of these species. The total flow and non-flow package of actions should be targeted at recovery of endangered fishes while limiting GCD operational restrictions to the jeopardy standard.

4. Resource Management Should be the Primary Focus. Scientific Planning Should be Related to How Best to Monitor Resources and How to Conduct Analysis in the Presence of Actions Directed at Resource Management. The Focus Should NOT Be to Design the Best Science Plan Without Regard to Resource Effects

The Adaptive Management Program was implemented in order to achieve the environmental goals of the preferred alternative. We believe that recommendations to the Secretary regarding his actions should be actions to achieve environmental and economic "balance": improving environmental resource to the maximum extent possible while achieving this "balance". This should be the priority over the scientific analysis. To the extent the scientific analysis and "balance"/environmental improvement conflict, we must choose environmental improvement.

The committees of the AMP have received scientific reports that indicate that two Grand Canyon resources are have failed to improve as anticipated in the EIS: 1) the Grand Canyon population of humpback chub and 2) sediment conservation. Western believes that these two resource merit primary attention and that the LTEP should focus on these (within the concept of "balance" – as described above).

In line with the above, the LTEP should be a design which implements changes that are expected to improve the status of these two resources. We believe this should have been the focus of the knowledge assessment workshop; to determine what is "known" in terms of the effect of management actions on the two sediment and HBC. [Note: by "known", Western doesn't mean "known with certainty" nor does it mean "best guess". Rather, those management actions that recent scientific analysis appear to support.]

5. A Block Design Science Plan is Doomed to Result in Ambiguous Conclusions Because Significant Causative Variable are Overwhelmed by Hydrological Events

In recent years, the GCMRC proposed an LTEP science design they termed a "block" design. According to this design, treatments would be turned off and on in accord with a planned schedule. This design has the advantage of producing data under controlled conditions so that cause and effect relationships can be discerned.

In the context of the Colorado River in the Grand Canyon however, this approach has two flaws. The first is confounding variables – specifically, hydrological variation – are beyond the scientists' control. According to recent work completed by Reclamation on Glen Canyon LTEP options[14], the variation in annual release volume from Glen Canyon Dam, into the Grand Canyon river corridor varies by as much as 40%, just within the "most probable" range. Based on previous Grand Canyon studies and scientific analysis related to the effects of flows on endangered fish species in the Green River, the volume of water overwhelms the environmental effect of the daily pattern of release. A block design doesn't adequately compensate for all variables.

The extent of daily fluctuations in discharge from GCD are determined by the individual constraints on releases as defined in Record of Decision (up and down hourly ramping rates, maximum and minimum daily flows, maximum daily flow change). Increased daily fluctuations, such as those prior to interim flows or under the recent experimental fluctuations (January - March 2003-2005) involved changing all or many of the constraints. Thus, based on a historical analysis of the response of performance measures, the effects of individual flow constraints are confounded. As a result, the overall effect of increased fluctuations was predicted in the matrix. However, from the perspective of experimental flow planning, it is necessary to identify the flow constraints that are most important in determining performance measure response. When possible, predictions for individual constraints were also made.

6. The LTEP EIS Should Include Cost Effectiveness as a Significant Element in Developing an LTEP

The LTEP should attempt to conduct experiments that are cost effective. The LTEP should consider the benefits gained from an experiment against the cost of an experiment (trade-off analysis). This may mean that experiments are conducted which do not maximize scientific information. Along these lines, an experiment would be rejected over an alternative experiment even though the first experiment is superior in regards to gaining scientific knowledge, but does so at greater cost .

Included in the cost of the LTEP and the elements that comprise an LTEP should be the costs of implementing restricted GCD releases – the added costs of purchase power to meet federal electrical power contract obligations – not just the cost of date gathering and scientific analysis.

.

Use modeling as appropriate; when modeling can be employed to reduce the need, time, cost, and impact of field investigation.

<u>7. The LTEP EIS Should Make Use of Recent Scientific Knowledge</u>

Recent events and actions have provided insight into potential actions that may assist in the recovery of the population of HBC in the Grand Canyon and environs:

1. "experimental removal of nonnative fish" may have had an effect in "turning

[14] *Development of Monthly Lake Powell Inflow and Release Sequences for the Assessment of Experimental Options* T. Ryan, USBR, October, 2006

around a decline in the population of HBC,[15]
2. drought-induced warming indicate that a temperature control device/selective withdrawal structure may aid in long-term population improvement,
3. success of the HBC translocation project (above Chute Falls, on the LCR) indicates the possibility that this type of activity may succeed in adding to the geographic reach and subsequent expanded populations of HBC.

8. <u>The LTEP EIS Should Include Experimentation Related to BHBFs but in a Manner That Conforms With the Law and Extends Existing Scientific Knowledge</u>

BHBF: BHBFs, as authorized by the ROD, use releases in excess of powerplant capacity required by dam safety purposes. Such releases would normally be made when reservoir storage is in a near full condition.

BHBF experiments conducted in 1996 and 2004 were justified as exceptions to the ROD under Sec. 1805 of the Grand Canyon Protection Act. Such releases were determined to be "necessary research and studies. . ."

To be consistent with the above legal framework of authorization, future BHBFs must be justified based on the "research and study" needs of any ongoing activities. BHBFs that are initiated exclusively by a "sediment trigger" would fall short of this legal consideration. The LTEP EIS should also consider Habitat Maintenance Flows (HMFs) or BHBFs that are within powerplant capacity.

We are looking forward to working with Reclamation and the other cooperating agencies developing the LTEP EIS. We anticipate that there will be a need for Western to participate in alternatives analysis for the EIS through hydrograph development and economic modeling. Please contact me if you have any questions or need further clarification.

Sincerely:

S. Clayton Palmer
Manager, Environmental and Resource Planning

[15] Grand Canyon Humpback Chub Population Stabilizing, USGS fact sheet 2006-3109, July, 2006

From: "Colby Hawkinson" <colbyhawkinson@hotmail.com>
To: <GCDExpPlan@uc.usbr.gov>
Date: Mon, Feb 26, 2007 7:31 PM
Subject: Public comment re: LTEP for Glen Canyon Dam

Friday, February 23, 2007

Regional Director, Bureau of Reclamation, Upper Colorado Region
Attn: UC-402
125 South State Street
Salt Lake City, UT 84318-1147

Dear Regional Director,

I have been a professional river guide and private river boater since 1994, and have been down the Colorado River within Grand Canyon National Park in both roles. It is on behalf of the ecological integrity of the Colorado River in Grand Canyon National Park, guides and outfitters who earn a living there, and all members of the public who enjoy that place that I ask you to consider the following comments.

I urge you to ensure that the Environmental Impact Statement you are currently working on produces alternatives that meet the intent of the Grand Canyon Protection act to preserve and IMPROVE park values downstream of Glen Canyon Dam. Please remember that these park values include native species & ecosystems, sediment, cultural resources, and visitor use.

Please include the National Park Service in this EIS process as a joint lead agency. This is essential, as there is no question that operation of Glen Canyon Dam significantly impacts values and resources within Grand Canyon National Park.

I ask that you ensure that LTEP alternatives are developed with firm adherence to the scientific method. The LTEP should build upon existing scientific data and represent an ecosystem approach. LTEP options must comply with legal requirements of endangered species protection and cultural resource protection in Grand Canyon National Park. In addition, I ask that you ensure that LTEP options utilize broad socio-economic analyses. Impacts of the operation of Glen Canyon Dam go beyond those effects on hydropower. Please give thorough consideration to other entities that are affected by the dam's operation, including recreation, local economies, and non-market values.

I urge you to conduct a Beach Habitat Building Flow (BHBF) early this year in order to provide data that is absolutely crucial to informing the Long Term Experimental Plan. I also urge you to include BHBF in all LTEP alternatives, utilizing sediment triggers with specified frequency based on best scientific data.

Finally, I ask that you include the development of a Selective Withdrawal Device for temperature control and improved water quality as an element in all of your alternatives.
Thank you for your time.

Sincerely,

Colby Hawkinson
207 South Asbury St. Unit B
Moscow, ID 83843
Email: colbyhawkinson@hotmail.com

With tax season right around the corner, make sure to follow these few simple tips.
http://articles.moneycentral.msn.com/Taxes/PreparationTips/PreparationTips.aspx?icid=HMFebtagline

February 27, 2007

Regional Director
Bureau of Reclamation
Upper Colorado Region
Attention: UC-402
125 South State Street
Salt Lake City, Utah 84318-1147

VIA EMAIL: GCDExpPlan@uc.usbr.gov

The undersigned appreciate the opportunity to provide recommendations regarding hypothesis development as part of the Bureau of Reclamation's (Reclamation) scoping of the Long-Term Experimental Plan for the Operation of Glen Canyon Dam and Other Associated Management Activities (LTEP) Environmental Impact Statement (EIS) process (71 Fed.Reg 74556-74558, December 12, 2006), which followed Notice published November 6, 2006 (71 Fed.Reg 64982-64983). Each of the undersigned has or will submit additional specific comments on scoping.

In developing any program of Long-Term Experimentation, key to the process, timetable and results will be a robust set of testable hypotheses that are consistent with the objectives of the program. The included hypotheses should be focused on the objectives articulated by the Adaptive Management Work Group (AMWG) at its December 2006 meeting, and as generally described in Table E.1 of the "Assessment of the Estimated Effects of Four Experimental Options on Resources Below Glen Canyon Dam" prepared by the Grand Canyon Monitoring and Research Center (GCMRC). We recommend that Reclamation consider incorporation of the following hypotheses in the suite of hypotheses to be developed and implemented as part of any Long-Term Experimental Plan (topical references refer to the descriptions contained in Table E.1):

- 1. FLOW TREATMENT – INCREASED DAILY FLOW FLUCTUATIONS
  - Fluctuating flows increase diversity, productivity and availability of the aquatic food base more than steady flows. An increase in daily flow fluctuations may enhance the positive effect of fluctuations on the aquatic food base.
  - Maximum daily flows greater than 25,000 cfs do not negatively impact humpback chub populations.
  - Daily Stage Variation of the following magnitudes does not negatively impact humpback chub populations: 12,000 cfs/day (Dec/Jan); 10,000 cfs/day (Feb/July/Aug); 8,000 cfs/day (Mar/June/Sept-Nov); 6,000 cfs/day (Apr/May).

- 2. FLOW TREATMENT – ALTERNATIVE RAMPING RATES
  - A downramp rate of 3,000 cfs/hr in April-October and 4,000 cfs in November-March does not negatively impact humpback chub populations.
  - An upramp rate of 4,000 cfs/hr does not negatively impact humpback chub populations.

- 3. FLOW TREATMENT – BEACH HABITAT BUILDING FLOWS
  - Beaches satisfactory to recreational users can be maintained indefinitely by periodic use of beach habitat or habitat maintenance flows that are within Glen Canyon Dam's generation capacity.
  - Beach habitat building flows can be utilized to offset potential impacts to beaches from increased ramping rates.

- 4. NONFLOW TREATMENT – TEMPERATURE, CONTROL OF NONNATIVE COLDWATER AND WARMWATER FISH, DISEASE/PARASITE RESEARCH
  - Warm water non-native fish numbers and diversity will increase as water temperatures rise.

- Warming the water may negatively impact the sport fishery below Glen Canyon Dam.
- Warming the water will benefit the humpback chub sufficient to overcome the increased population of warm water (catfish, bass, etc.) predator fish.

In addition, we recommend specific hypotheses be developed to address the following nonflow actions:

Humpback chub translocation
Humpback chub refuges
Humpback chub population augmentation planning
Mini experiments regarding option implementation

The hypotheses described in this letter are an initial set of hypotheses that could be included in a comprehensive science plan. As the EIS alternatives are developed and a long-term science plan is eventually implemented, we will make suggestions for additional hypotheses and science questions. We support Reclamation's commitment to work through the Glen Canyon Adaptive Management Work Group process as this EIS process unfolds. We are prepared to assist in development of hypotheses as Reclamation deems appropriate.

Sincerely,

/s/ Leslie James
Executive Director
Colorado River Energy Distributors Association (CREDA)

/s/ John Shields
Interstate Streams Engineer
Wyoming State Engineer's Office
State of Wyoming

/s/ Mark Steffen
Federation of Fly Fishers
Northern Arizona Flycasters

/s/ Bradley S. Warren
CRSP Manager
Western Area Power Administration

RECLAMATION
Managing Water in the West

U.S. Department of the Interior
Bureau of Reclamation

— *Comment Card* —

COMMENTS DUE BY WEDNESDAY, FEBRUARY 28, 2007

PLEASE PRINT

Date: 17 Dec. 2006

Name: CRISTA WORTHY Title (if applicable): _____

Telephone: 310-454-4329 Fax: 310-230-7629

Organization/Business (if applicable): _____ E-Mail: cristaworthy@hotmail.com

Address: 16664 CALLE BRITTANY

City: PACIFIC PALISADES State: CA Zip: 90272

☒ Yes, I would like to be added to your mailing list: E-Mail ☒ US Mail ☐

The Bureau of Reclamation is seeking public comment on the adoption of a Long-Term Experimental Plan for the future operation of Glen Canyon Dam and other associated management activities. Your input on the scope of the project and the issues and alternatives that should be analyzed is greatly appreciated. Please write legibly.

Even though I own a houseboat at Lake Powell, my wish for the Colorado River is to have the dam destroyed.

Barring that unlikely event, the government must find some other way to get the sediment now building up behind the dam into the river below the dam so it can flow into the Grand Canyon.

Having spent many hours in the Grand Cyn, on the river, in the 1970's, and recently, I can say the environment is totally altered. Sandbars are gone, tamarisk everywhere, sucking up precious water.

If we can go to the moon we should be able to figure this out.

Please submit your comments in the space provided, fold the card in half, tape the edges, and mail the completed card back to:
Regional Director, Bureau of Reclamation, Upper Colorado Region, Attention: UC-402, 125 South State Street, Salt Lake City, Utah 84138-1147.
Comments must be received by February 28, 2007.

From: "Cyndy Cole" <CCole@azdailysun.com>
To: <dkubly@uc.usbr.gov>
Date: Wed, Jan 10, 2007 9:51 AM
Subject: Glen Canyon Dam NEPA

Hello,

Could I please be added to your list to receive the EA or EIS being compiled on the operation of the Glen Canyon Dam and/or Lower Colorado River ecosystem below the dam and all related materials as they become available?

Cyndy Cole

Environment, growth, county reporter

Arizona Daily Sun

Flagstaff, Arizona

office 928 913 8607

fax 928 774-4790

RECLAMATION
Managing Water in the West

U.S. Department of the Interior
Bureau of Reclamation

— Comment Card —

COMMENTS DUE BY WEDNESDAY, FEBRUARY 28, 2007

PLEASE PRINT

Date: 12/19/06

Name: Cindy Cole

Title (if applicable) :

Telephone: 928 913 8607

Fax: 928 774-4790

Organization/Business (if applicable):

E-Mail: ccole@azdailysun.com

Address:

City:

State:

Zip:

☑ Yes, I would like to be added to your mailing list: E-Mail ☑ US Mail ☐

The Bureau of Reclamation is seeking public comment on the adoption of a Long-Term Experimental Plan for the future operation of Glen Canyon Dam and other associated management activities. Your input on the scope of the project and the issues and alternatives that should be analyzed is greatly appreciated. Please write legibly.

None - no comments

Please submit your comments in the space provided, fold the card in half, tape the edges, and mail the completed card back to:
Regional Director, Bureau of Reclamation, Upper Colorado Region, Attention: UC-402, 125 South State Street, Salt Lake City, Utah 84138-1147.
Comments must be received by February 28, 2007.

From: "Bubba" <danauster@comcast.net>
To: <GCDExpPlan@uc.usbr.gov>
Date: Tue, Jan 30, 2007 8:24 AM
Subject: Glen Canyon Dam

Mr. Rick Gold
Regional Director, Bureau of Reclamation
Upper Colorado Region
Attn: UC-402
125 South State Street
Salt Lake City, Utah 84138-1147

Dear Mr. Gold,

Thank you for the opportunity to comment on the current EIS for Glen Canyon Dam. I have been enjoying Lake Powell since 1985, and I'd like to see it preserved and protected for the future generations.

The fact that the five independent groups won their lawsuit demanding this EIS is disturbing, and I believe they should be financially accountable for said EIS, and also for any future tests, studies, or changes that they demand.

As far as my recommendations go for operations of Glen Canyon Dam, let the experts continue with the daily fluctuating flows with just enough water to meet downstream needs. Environmental groups should have no say on how to operate the dam. Arizona Game & Fish and the Adaptive Management Work Group, along with the Bureau of Reclamation, should make all recommendations.

I have the privilege of working at Lake Powell and have been enjoying its beauty for the past 8 years.

I don't think the dam should be modified at the cost of millions to spill warmer water through the Grand Canyon. The environmentalists claim this is the only solution to save the small Chub population. However, they have blinders on when it comes to the repercussions. With the current threat of the Quagga Mussel invasion of Lakes Mead, Mohave, and Havasu, the mussels are sure to range throughout the entire Colorado River watershed very soon. Should the mussels get into the Grand Canyon, they would have a difficult time reproducing, as they need a temperature of at least 50 degrees Fahrenheit. Add to that the velocity of the water, and they have difficulty attaching to solid underwater strata. But if warmer water spilled through the Canyon, it would likely welcome the mussels. In fact, all kinds of changes would occur with warmer water-so many that the scientists would have a hard time keeping up with them all.

Let's just take a quick look at what would happen, if the Grand Canyon were to receive warmer water from Glen Canyon Dam: The Lees Ferry trophy trout fishery would be in jeopardy, as would all trout in the river, the Asian Tapeworm which is living in the Little Colorado River could get into the mainstream Colorado River to infect other fish species, channel catfish and carp (both warm water species) would work their way upstream from Lake Mead, and further prey on endangered fish in the Canyon. Prior to the dam, the catfish were the dominant fish in the river. Although the catfish seem docile, they are more predacious than trout. If the bonytail chub, a native fish, were to be re-introduced into the Grand Canyon, it would likely

hybridize with the humpback chub. Likewise, the razorback sucker would hybridize with the flannel mouth sucker. So the dam has helped the native fish by keeping them from inter-breeding. The species' integrity remains intact.

The environmentalists have been calling for the removal of Glen Canyon Dam for years now. Why do we never hear them calling for the removal of other dams on the Colorado River system? Their claims and "facts" just don't hold water. Good thing Glen Canyon Dam does! Keep the dam functioning just as it is. These groups have no business messing with the water supply for the southwestern United States.

I think the priority right now is to deal with the new Quagga Mussel invasion. I think the resources need to be spent now to prevent them from becoming established in Lake Powell. When or if the mussels get into Lake Powell, much more will be spent to control or remove them in the future, so the dam can operate properly.

Thank you for your time,

Dan Auster

Dan Auster | President, Owner

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ORIGINAL

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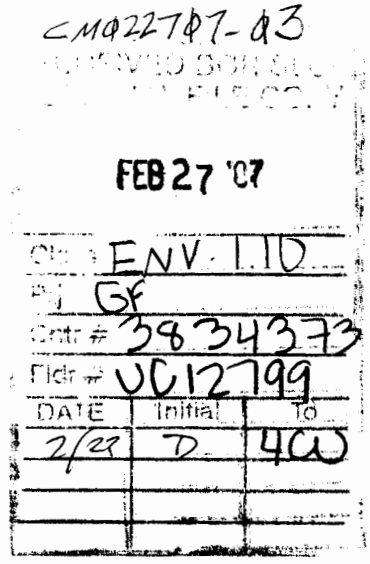


February 23, 2007

Mr. Rick Gold
Regional Director
Bureau of Reclamation
Upper Colorado Region
Attn: UC-402
125 South State Street
Salt Lake City, UT 84138-1147

Subject: Comments on Glen Canyon Dam EIS

Dear Mr. Gold:

Thank you for allowing us the opportunity to submit comments for the Environmental Impact Statement on the Long-term Experimental Plan for the Future Operation's of Glen Canyon Dam. Studies completed in 1996 by the Bureau of Reclamation and other Federal, State, Tribal and academic entities documented that the river ecosystem has been significantly impacted since 1956 due to the operations of Glen Canyon Dam. The 1996 Record of Decision and the Grand Canyon Protection Act promised that the river environment of the Grand Canyon would improve. Unfortunately we continue to see a decline in the ecological integrity of the river system.

The Secretary of the Interior shall operate Glen Canyon Dam in accordance with the additional criteria and operating plans specified in Section 1804 and exercise other authorities under existing law in such a manner as to protect, mitigate adverse impacts to, and improve the values for with Grand Canyon National Park and Glen Canyon National Recreation Area were established, including, but not limited to natural and cultural resources and visitor use. So begins Section 1802 of the Grand Canyon Protection Act, Public Law 102-575. The intent and integration of the long term research plan and monitoring program outlined in the Proposed Adoption of a Long-Term Experimental Plan for the Future Operations of Glen Canyon Dam is limited, as it is presently laid out, in its ability to meet the objective set forth in the Grand Canyon Protection Act.

It is unclear from the information presented in the scoping meetings and documentation how the implementation of the Long-term experimental and operations plan will remedy or rectify the situation that dire environmental situation that exists today. The new plans for ongoing investigation and experimentation may be beneficial for gathering new data but it is unclear how this information will be integrated and implemented into changes in the Glen Canyon Dam operations that will allow for listed fish species to recover.

Section 1805 of the Grand Canyon Protection Act call for a *Long-Term Monitoring effort that will ensure that Glen Canyon Dam is operated in a manner consistent with that of the intent of the Act*, which clearly is focused on meeting existing federal law, including the Endangered Species Act and the Organic Act for the National Park Service. From a

priority perspective the demise of the native fish species should be sending a clear signal of where the intent of the long-term research and monitoring program should be.

The following comments should be implemented in order to allow for a future in the Grand Canyon that meets the requirements of the Grand Canyon Protection Act.

1. **Restructure the Focus of the EIS on Native Fish Recovery.**

Of the four endangered fish species that historically existed in the Grand Canyon, only the humpback chub remains. Three of the native listed fish species have been extirpated from the Grand Canyon and the humpback chub remains however population numbers have dropped to perilously low levels. When evaluating the long-term experimental plan for the future operations at Glen Canyon Dam it is important that the information learned be applied to protecting and restoring the species and habitats in the Grand Canyon. It is clear from data collected by the Grand Canyon Monitoring and Research Center that continuing operation business as usual will continue to lead to negative impacts in the Grand Canyon. Therefore it is recommended that a new suite of operation options be included in the review in the EIS:

- An evaluation of a natural flow regime operation scenario. Should include looking at a broader range of flow regimes in order to protect the resources of the Colorado River. The lack of data does not mean that a shift towards pre-EIS flow regimes are appropriate.
- The implementation and re-establishment of a water temperature regime consistent with seasonal temperature variation for the Colorado River in Grand Canyon.
- The implementation and re-establishment of seasonal sediment inputs into Grand Canyon at a level that would provide cover for native fish and provide for the build up of sands and silts necessary for building beaches and backwater habitats.
- Aggressive non-native species control including plants, birds, and fish.
- Establishment of triggers for endangered fish populations where specific actions would be taken to protect them until answers can be achieved. The USGS's report last year on the continued demise of the humpback chub populations indicates that we have not gotten it right yet.
- Meeting the needs of the native fish species require us to be much more aggressive in management actions until we can resolve and fix the drivers that continue to cause the demise of the species. Thresholds for action need to be developed into the operations and management plans.
- Evaluate the potential to reduce the level of Lake Powell, store the water in Lake Mead and restore Grand and Glen Canyon.

2. **Impacts on Lake Powell and Glen Canyon**

The anticipated management of the Colorado River includes a large probability that flow regimes will be reduced due to reduced snowpack and lowered runoff volume. This probability should be acknowledged in the EIS and addressed through alternative scenarios for evaluation of the impacts to the Grand Canyon environment. Changes in

the operations of Glen Canyon Dam will have a direct and immediate impact on flow patterns. The long-term monitoring plan should address how this potential will be addressed. Specific recommendations include:

- Identify potential flow regimes that may occur as a result of changing drought operation patterns at Glen Canyon Dam.
- Identify potential changes in the elevation levels of Lake Powell and how this will potentially impact the limnological conditions in the reservoir and the resulting quantity and quality of releases to the Grand Canyon.
- Identify the potential impacts from the continued exposure of the delta at the head of Lake Powell on the remobilization of heavy metals and salts that have accumulated in the sediments. Concerns exist over the yellow-cake material that was placed in the reservoir basin prior to the filling of the reservoir and what exposure of that may mean to the ecological (and human) resources of the area.

3. Long-Term Experimental Plan

The long term should provide the basis for each scientific study that is to be conducted in the Grand Canyon and in Lake Powell. Special interest science can be as bad as special interest decisions in that critical research and data collection is not collected, often at the loss of more important information. Specific actions that should be included in the EIS include:

- Is the USGS the appropriate entity to run the science program in the Grand Canyon that is to aid dam and reservoir management? The great experiment of Secretary Babbitt, while noble in intent, seems to have shifted its emphasis and ability to address management and operations questions regarding Glen Canyon Dam in a timely and scientifically credible manner.
- Identification and priority of research. It should be inherently clear and transparent as to how specific science programs are agreed to and the process to get timely data to decision-makers.
- Adequacy of support to Native American tribes in protecting their resources in the Grand Canyon.
- Cumulative impacts and integration of scientific information. A great deal of time, effort and money has been spent on the collection of a tremendous amount of scientific information. What appears to be lacking, except in a cursorary form, is how this data is going to be integrated and analyzed to provide dam operators and water managers with meaningful information. It is clear that interactive and cumulative impacts are occurring to the resources and this would seem to be a great opportunity to move forward rather than sideways.

4. Adaptive Management Program

The Glen Canyon Dam Adaptive Management Program was administratively initiated when the Record of Decision was signed by Secretary of Interior Babbitt in the fall of 1996. The intent of the program was to build on the success of the Glen Canyon Environmental Studies and to more fully integrate operational decisions at the dam with

the increasing scientific information. In October 2005 the U.S. Geological Survey's SCORE report on the success of the Adaptive Management Program was reviewed. The SCORE review did not reflect favorably on the Adaptive Management Program IF the intent was to meet the requirements of the Grand Canyon Protection Act and the intent of the EIS. I am left wondering how the dam relationship-focused science program was transformed into more of a scientific information gathering endeavor. Seems like after ten years of additional studies beyond the GCES that we should be able to move on to management of the resources and monitoring that focuses instead on using what has been accomplished, integrating the data together and focusing more on monitoring the effects to ensure the intent of the Grand Canyon Protection Act and Record of Decision are being met.

Of concern with the Adoption of a Long-Term Experimental Plan for the Future Operations of Glen Canyon Dam is that it appears that the SCORE report has not been taken into consideration or actions to resolve some of the primary scientific issues identified. The current set up of the Science Program and identified review process does not take into consideration that we cannot continue business as usual if we are to meet the requirements of the Grand Canyon Protection Act and the recovery of species and their habitats in the Grand Canyon.

The EIS scope should include the following:

- An independent review of the existing Adaptive Management Program with recommendations of actions necessary to make it more effective.
- A review of the current peer-review process and Scientific Advisory Program. The concept of "conflict of interest" should be addressed to the program head and the group involved in the review.
- A revision of the membership organization for the Adaptive Management Program to provide balance between development and management interests and conservation interests. The current organization is unfairly tipped in the favor of water and power special interest groups.

5. National Research Council Findings and Opportunity.

On February 21, 2007 the National Research Council issued a report on the future probability of water availability in the Colorado River Basin. Of note, former Commissioner Eulid Martinez was part of the review panel so one must assume that the Bureau of Reclamation's perspective was provided as input to the overall process. Even with the traditional engineering-centric water management approach present in the discussion, the results point to a radical need for a change in the way Colorado River Basin water is managed.

The development of long-term experimental plan should include evaluation of the high probability that flow regime quantities in the Colorado River should be evaluated and included in future scientific evaluation. The potential impact of changes in water volume will have direct effects on how Reclamation manages and operates Glen Canyon Dam and the other pertinent reservoirs in the Colorado River Basin. This would seem a prime

opportunity to initiate valuable scientific inquiry regarding the potential impacts on the environmental resources of Glen and Grand Canyon. I would encourage the Bureau to move away from the traditional science planned and evaluate relationships that may be anticipated in the climatic future.

6. Invasive Species

The discovery in January of the Quagga snail in Lake Mead is just the tip of the exotic species concerns. We all know that it is just a matter of time before the species is found in Powell and then in the Grand Canyon. The original intent of the Glen Canyon Environmental Studies was to design and implement science that could assist the Bureau of Reclamation and water managers in making better decisions related to the operation of Glen Canyon Dam. In the process of meeting our goals we had to implement some basic research in order to put into context the management related science. While you may not have agreed with the process I took, the result was that we were able to meet the broader needs of the Department of Interior in completing the EIS on the operations of Glen Canyon Dam. I mention this in that we initiated some basic science work to build the baseline for evaluating exotic species interactions with the native ecological assemblage.

The long-term experimental plan seems to be focused heavily on research that has limited value to water managers and the Bureau of Reclamation. We understand how dam releases affect sediment and beaches in the Grand Canyon. The scientific work that is proposed now is fine science, but has limited value to water and dam managers. Instead the major issues of how to manage protect and operate Glen Canyon Dam and the Colorado River from an invasion of exotics; be they Quagga snails, tamarisk, New Zealand mud snails, or New Yorkers, is not addressed. Again I go back to the intent of the Grand Canyon Protection Act and the original scientific effort – focus on meeting the needs of dam and river management.

Summary

The Grand Canyon Protection Act (1992) and the initial EIS on Glen Canyon Dam in 1996 provided a great opportunity for Reclamation to step forward and be a leader in the management of the Colorado River. The past ten years have not provided the information or the process that was envisioned in 1996 and the process and approach needs to be reviewed and revised in the current EIS efforts.

Thank you for consideration of these comments.

Sincerely,

David L. Wegner
2609 Columbine Avenue
Durango, CO 81301
Glen Canyon Institute

From: "David Luinstra" <dlluinstra@twlakes.net>
To: <GCDExpPlan@uc.usbr.gov>
Date: Thu, Jan 11, 2007 9:08 AM
Subject: Comments - Environmental Impact Statement to develop a Long-Term Experimental Plan for Glen Canyon Dam

Regional Director

Bureau of Reclamation

Upper Colorado Region

Attention: UC-402

125 South State Street

Salt Lake City, UT

GCDExpPlan@uc.usbr.gov

CC:

gcrg@infomagic.net

David Luinstra

PO Box 178

Grimsley, TN 38565

I would like to comment on the Bureau of Reclamation's recently initiated Environmental Impact Statement (EIS) to develop a Long-Term Experimental Plan (LTEP) for Glen Canyon Dam.

As I understand the purpose of the EIS is to develop a comprehensive scientific plan to improve and protect important Grand Canyon resources which are greatly impacted by Glen canyon Dam. In my Opinion all of these impacts appear to be negative.

As a recent and frequent user of the Colorado River in the Grand Canyon since 2001, I have seen these impacts first hand. The Colorado River in the Grand Canyon has become a very unnatural river corridor. Negatively impacting the natural flora and fauna because of the change in water temperature, lack of sediment contained in the dam discharge, and probably most important the lack of seasonal flooding.

1.. The EIS process must be open with public involvement and public access to the all information.

2.. The American public is smart enough determine if the appropriate approach for developing LTEP alternatives is used. Therefore, it is most important for the LTEP alternatives to be scientifically credible with well-defined scientific hypotheses - don't develop a plan and then try to fit the science to it.

3.. Focus this EIS on developing alternatives that meet the intent of the Grand Canyon Protection Act to preserve and improve park values downstream of the dam. Park values include native species and ecosystems, sediment, cultural resources and visitor use -values that mean so much to all of us and to future generations.

4.. The National Park Service (NPS) must serve as a joint lead agency for this EIS process. National Park values and resources downstream of Glen Canyon Dam are strongly influenced by dam operations.

5.. Extensive research has been conducted in the Grand Canyon and the LTEP must be based on an ecosystem approach that builds on this research.

6.. LTEP options must be in compliance with legal responsibilities for protection of endangered species, as well as those for the preservation of cultural resources in Grand Canyon.

7.. Give us the whole picture - not just a part of it. The LTEP options must incorporate broader socio-economic analyses. The economic analyses must not be restricted to the impacts to hydropower generation, but must also include the impacts to other resources including recreation, local economies, and non-market values.

8.. Conduct a Beach Habitat Building Flow in early 2007 in order to provide urgently needed data to inform this Long Term Experimental Plan.

9.. Include BHBF's as a common element to all LTEP alternatives, utilizing sediment triggers with specified frequency based on best scientific data.

10.. Support the development of a Selective Withdrawal Device for temperature control, sediment discharge, and improved water quality as a common element to all alternatives.

Thank you
David
David Luinstra
Grimsley, TN, 38565

Protect and Enjoy our American Rivers join
For Boaters - By Boaters www.TennesseeWhitewater.org
American Whitewater -- www.AmericanWhitewater.org
Grand Canyon Private Boaters Association http://www.gcpba.org/
American Canoe Association http://www.acanet.org/

CC: <gcrg@infomagic.net>, <mongo@chaffeeco.net>

From: David Simone <lightworks@mindspring.com>
To: <GCDExpPlan@uc.usbr.gov>
Date: Mon, Feb 12, 2007 11:24 PM
Subject: River management

Dear Bureau of Reclamation,

I have been lucky enough to participate in six private boating trips through the Grand Canyon. During these trips and in educating myself since, I've become aware of several big problems in the canyon's ecosystem.

I would like to request your agency intergrate the following into management policies.

€ endangered species should be given more weight in deciding how the Glen Canyon dam is operated. Their recovery is very important.

€Is there any way to warm up the temperature of the river. Is there a way of returning the river flows to a more historic fluctuation pattern. Of course the loss of sedimentation is robbing the water and beaches of nutrients need to support a wide variety of species.

€Is there some balance that could be struck between need for electrical generation and robbing the natural world of it's normal river system. Any new EIS should have a commitment to native species and sediment flow into the river.

Thank you for your consideration,

David Simone
Eugene, Oregon

ORIGINAL

MR RICK GOLD
REGIONAL DIRECTOR, BOR
UPPER COLORADO REGION
ATTN: UC-402
125 SOUTH STATE ST.
SALT LAKE CITY, UT 84138-1147

DEAR MR GOLD

I HAVE BEEN A FREQUENT VISITOR, ADVENTURER TO THE GRAND CANYON FOR THREE DECADES. IT IS A PLACE OF MARVELOUS INSPIRATION, BUT I HAVE WITNESSED ITS DEGRADATION WITH DISPAIR. I AM WRITING TODAY IN AN APPEAL TO CONSIDERATIONS TOWARD ECOSYSTEM RECOVERY IN ALL OF THE COLORADO DRAINAGE, ESP. GRAND CANYON. IN REGARDS TO THE LONG TERM EXPERIMENTAL PLAN FOR THE FUTURE OPERATIONS OF GLEN CANYON DAM, I AM ASKING YOU TO SERIOUSLY REVIEW THE FOLLOWING POINTS:

- THE PRESERVATION AND RECOVERY OF THE COLORADO RIVER CORRIDOR SHOULD BE THE PRIMARY CONCERN OF THE LTEP.
- ANY NEW EIS SHOULD HAVE A DEFINED, JUST PURPOSE AND NOT BE USED TO DODGE PREVIOUS EIS FINDINGS.
- CORRECT THE MISMANAGEMENT OVER [redacted] THE PAST 3 DECADES [redacted] BY THE DEPT OF INTERIOR IN ITS FAILURE OF RECOVERY ISSUES.
- RESTORATION MUST INCLUDE THE ASPECTS OF NATURAL CYCLES, INCLUDING VARIABLE WATER TEMPERATURES AND RIVER FLOW LEVELS, AND SEDIMENT ACCUMULATIONS SIMILAR TO PRE-DAM AMOUNTS.
- KEEP MANAGEMENT PROGRAMS OPEN TO INDEPENDENT SCIENTIFIC RESEARCH INPUT.

THANK YOU FOR YOUR CONSIDERATION —

Dennis F. Smith

DENNIS F. SMITH
PO BOX 95
ENTERPRISE, OR 97828

From: Denny Preisser <dpreisser@yahoo.com>
To: <GCDExpPlan@uc.usbr.gov>
Date: Sat, Feb 24, 2007 9:13 PM
Subject: Glen Canyon comments

I would like to add a first hand account of a float trip I did on August 28 of 2004 from Piaute Farms 12 miles down to Nokai Canyon. This is when Lake Powell reached historic lows and retreated to let the San Juan flow again where it had been inundated for the past 40 years. This area had been under lake water as little as 18 months prior. I had read reports from GCI about how canyons were recovering rapidly from silt build up and natural vegetation was making a speedy comeback. I had thought it was more PR than fact. I can attest to this fast recovery of canyon systems from this trip. I expected us to be floating through a sand gorge from where the river cut into the silt similar to what I see in Laguna Creek around Kayenta as arroyo cutting is performed. I was amazed at the beautiful sites of white sand beaches, thickets of Coyote Willows, beaver and bobcat tracks, water fowl, and seep springs that all would make perfect river campsites. It makes me believe that the return of Glenn Canyon / Colorado river to a natural flowing canyon river will not take generations to repair itself. I firmly believe that a natural Glenn Canyon will be more valuable to the American people then the present Lake Powell and should be seriously acted upon. I have had the honor to meet two different men that floated Glenn Canyon prior to the closing of the gates. They both are burly oldtimers and both had tears in their eyes as they relived their respective trips through Glenn. I would like to give that type of life changing opportunity to future generations.

Thank you for your time and consideration,

Denny Preisser
Kayenta, AZ

From: Diane Bracey <dbracey@allwest.net>
To: <GCDexpplan@uc.usbr.gov>
Date: Tue, Feb 27, 2007 3:29 PM
Subject: Citizen Comment on EIS to develop a Long Term Experimental Planfor Glen Canyon Dam

Please consider the following important items regarding the Environmental Impact Statement (EIS) to develop a Long Term Experimental Plan (LTEP) for Glen Canyon Dam. Of greatest concern are our resources downstream in Marble Canyon and Grand Canyon.

-Focus this EIS on developing alternatives that meet the intent of the Grand Canyon Protection Act to preserve and improve park values downstream of the dam. Park values include native species and ecosystems, sediment, cultural resources and visitor use - values that mean so much to all of us and to future generations.

-Please do not restrict economic analyses to the beneficial impact of hydropower. Analyses should include the negative impact of increased water usage, but also should include the impacts to other resources including recreation and tourism in general, local economies, and non-market values.

-Conduct a Beach Habitat Building Flow (BHBF) in early 2007 in order to provide urgently needed data to accurately develop this LTEP. Include BHBFs as a common element to all LTEP alternatives, using sediment triggers with specified frequency based on the best scientific data. Support the development of a Selective Withdrawal Device for temperature control and improved water quality as a common element to all alternatives.

Thank you for your efforts.
Diane Bracey
2621 Eagle Cove Dr.
Park City UT 84060
435 640 1719
dbracey@allwest.net

CC: <gcrg@infomagic.net>

From: "Dick&Donna Heguy" <DODI74@NPGCABLE.COM>
To: <GCDExpPlan@uc.usbr.gov>
Date: Thu, Jan 18, 2007 2:26 PM
Subject: Glen Canyon Dam experiments

To whom it may concern:

When considering how to conduct your experiments, please don't do any extreme flows, or steady flows like the ones done in the past. The damage to the aquatic plants and insects was extensive. It is important that you look for ways to improve the situation in the river for everyone, and not do alot of damage in the process.

You should try and remove the warm water non-native fish in the Little Colorado River (catfish,carp) where the humpback chubs do well and quite killing trout out of Bright Angel creek. These cold water fish are not the problem, but are an excellent fishing resource enjoyed by many.

You should try and improve the Lees Ferry ecosystem and trout fishery rather than destroy it with your experiments. An effort should be made to identify the effects on this area, and not just on the beaches down river. Future experiments should include trout stocking at Lees Ferry, whenever necessary, in an effort to fix the damage that was done in the past.

Hopefully this time the experiments will try and identify the benefits to acquatic insect, plant, and wildlife habitat, as well as recreational fishing and rafting. These should be your ultimate goals in finding the best way to operate the dam.

Good luck in your efforts.

Dick Heguy
2818 N Erin Way
Flagstaff, Arizona
86001

ORIGINAL

UPPER COLORADO RIVER COMMISSION

355 South 400 East • Salt Lake City • Utah 84111 • 801-531-1150 • FAX 801-531-9705

January 27, 2006

Rick Gold
Regional Director
Bureau of Reclamation
Upper Colorado Region
Attention: UC-402
125 South State Street
Salt Lake City, Utah 84318-1147

Re: Public Scoping Comments for Glen Canyon Dam Long-Term Experimental Plan

Dear Mr. Gold:

Thank you for the opportunity to provide comments during your public scoping process prior to Interior's preparation of an environmental impact statement for adoption of a Long-Term Experimental Plan (LTEP) for operation of Glen Canyon Dam and other associated management activities under the authority of the Secretary of Interior. As you know, the Upper Colorado River Commission is comprised of a Commissioner representing each upper division state as appointed by the Governors of Colorado, New Mexico, Utah and Wyoming, plus a chairman representing the federal government. The Commission is an interstate administrative authority for the upper division states, and the proper operation of Glen Canyon Dam is of vital importance in fulfilling this mission.

Although the past decade of adaptive management and experimentation has been very expensive and frustrating because of lost revenue for the basin fund, diminished power production, and lack of solid results from previous experiments, we support the process Interior has initiated now to possibly make changes and establish a framework for a more efficient Long-Term Experimental Plan. It is important that the alternatives considered in this EIS preserve the purposes for which Glen Canyon Dam was constructed and, to the extent practicable, meet environmental objectives. Lake Powell and Glen Canyon Dam are essential to meet the needs of water and power users throughout the rapidly growing western United States. Experimentation must not impact the states' abilities or rights under the Colorado River Compact or other pertinent laws governing use of the Colorado River. No alternatives should be included in this EIS which would impair states' abilities or rights granted under the body of law referred to as the "Law of the River."

We are opposed to continued experimentation solely for the sake of science when management decisions could be made that would help achieve the goals of adaptive management. We believe that more of the limited resources should be expended on management practices for which a reasonable body of evidence exists to conclude that

they are beneficial to the environmental concerns in Glen and Grand Canyons. Possible actions which we believe could move from experimentation to management practices include non-native fish removal, establishment of refugia and translocation. Experimentation should not go on indefinitely without limitation of time and cost. The ultimate alternative selected must maintain a proper balance between the various resources including maximizing hydropower capacity and operational flexibility under the Law of the River to the extent possible.

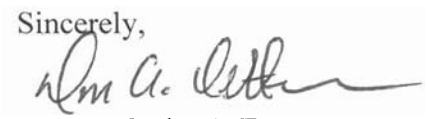
The states of the Upper Division have participated individually in the Adaptive Management Work Group (AMWG) and we are supportive of the alternatives that were officially forwarded by the AMWG to the Secretary to be evaluated in the EIS process. However, it should be understood that we would not support implementation of some of the alternatives forwarded by AMWG for evaluation. The flow-based options were described in the December 6, 2006 AMWG resolution as Option A, Option A Variation, Option B and Option C in addition to a base option of Modified Low Fluctuating Flows (MLFF). The options are described in detail in table E1 of the "Assessment of the Estimated Effects of Four Experimental Options on Resources Below Glen Canyon Dam" as prepared by GCMRC (attached). In addition, these alternatives collectively include eight nonflow alternatives for evaluation including:

Temperature control device
Control of nonnative coldwater fish
Control of nonnative warm water fish
Humpback chub disease/parasite research
Humpback chub translocation
Humpback chub refuges
Humpback chub population augmentation planning
Mini experiments regarding option implementation

We strongly encourage the Secretary to consider a humpback chub recovery implementation program for the area in question below Glen Canyon Dam. There are many things that should be done now which will benefit the humpback chub but have been postponed because of the past experimentation plan.

Thank you for the opportunity to comment.

Sincerely,



Don A. Ostler, P.E.
Executive Director and Secretary
Upper Colorado River Commission

cc: Upper Colorado River Commissioners
w/attachment

Table E.1 Summary of flow and nonflow components of the four experimental options under consideration by the Glen Canyon Dam Adaptive Management Program. BASE operations (modified low fluctuating flow regime) are provided for comparison.

	Flow/Nonflow Treatment	BASE operations	Option A	Option A Variation	Option B	Option C
Flow	Increased daily flow fluctuations	No	Yes (increased by 50% to 66% in winter months and by 25% in summer months)	Yes (increased by 25% to 66% in all months except April and May)	No	Yes (increased by 50% to 66% in winter months)
Flow	Stable flows	No	No	No	Yes, (tests of 4, 8, and 12 months)	Yes, (September through October)
Flow	Beach/habitat-building flows	Possible, but only under hydrologic triggers	Yes, as tests under sediment input triggering	Yes, as tests under sediment input triggering	Yes, as tests under sediment input triggering	Yes, as tests under sediment input triggering
Flow	Alternative ramping rates	No	Yes (hourly downramping rate increased 100% in all months)	Yes (hourly downramping rate increased 100% in Apr–Oct and 167% in Nov–Mar)	No	Yes (hourly downramping rate increased by 100% in Nov–Jul only)
Nonflow	Temperature control device	No	Yes	Yes	Yes	Yes, 2 units assumed
Nonflow	Control of nonnative coldwater fish	No	Yes, as needed	Yes, as needed	Yes, as needed	Yes
Nonflow	Control of nonnative warmwater Fish	No	Yes, as needed, with R&D starting in 2007	Yes, as needed, with R&D starting in 2007	Yes, as needed, with R&D starting in 2007	Yes, with R&D starting 2007
Nonflow	Humpback chub disease/parasite research	No	Yes	Yes	Yes	Yes, with R&D starting 2008
Nonflow	HBC translocation	No	Yes	Yes	No	[1]Yes
Nonflow	Humpback chub refuge(s)	No	Yes	Yes	Possibly	[1]Yes
Nonflow	HBC population augmentation planning	No	Yes, Planning efforts toward implementation, as needed	Yes, Planning efforts and implementation	No	[1]Yes, planning phase
Flow and Nonflow	[2]Mini experiments	No	Yes	Possibly	Yes	[1]Yes
Experimental Design		Not applicable	Reverse Titration	Reverse Titration	Factorial	Forward Titration

NOTE: 1) For Option C: Ancillary projects not considered part of the main experiment; implementation decision includes consideration of confounding the main experiment. 2) Mini experiments are short-term field experiments that do not confound main experimental treatment effects. For Option C: These experiments are considered undefined concepts and would be incorporated if defined and not in conflict with the main experiment.

From: "D. Riddle" <aqua4fun@hotmail.com>
To: <GCDExpPlan@uc.usbr.gov>
Date: Wed, Jan 24, 2007 4:07 PM
Subject: Long Term Experimental Plan Re Glen Canyon Dam

It appears that you have been experimenting with the operations of Glen Canyon Dam for a number of years now with virtually no beneficial impact on the GrandCanyon ecosystem. I think a change of direction is needed before another 10 years of experimentation damages the ecosystem beyond repair.

I support studying the decommissioning of Glen Canyon dam. Studies should be made about dealing with the toxic sediment and restoration of Grand Canyon to its natural state.

Given the forecast of on-going drought, it would seem that more water would be conserved if all storage took place in Lake Mead. There would be a drastic reduction of loss from evaporation. The amount of power generation lost could be mitigated by promoting energy conservation.

Respectfully submitted

Donna Riddle

RECLAMATION
Managing Water in the West

U.S. Department of the Interior
Bureau of Reclamation

— Comment Card —

COMMENTS DUE BY WEDNESDAY, FEBRUARY 28, 2007

PLEASE PRINT

Date: 1-12-07

Name: Doug Ernest

Title (if applicable) :

Telephone:

Fax:

Organization/Business (if applicable): Morgan Library
Colorado State University
Fort Collins, CO 80523-1019

E-Mail:

Address:

City:

State:

Zip:

☒ Yes, I would like to be added to your mailing list: E-Mail ☐ US Mail ☒

The Bureau of Reclamation is seeking public comment on the adoption of a Long-Term Experimental Plan for the future operation of Glen Canyon Dam and other associated management activities. Your input on the scope of the project and the issues and alternatives that should be analyzed is greatly appreciated. Please write legibly.

Please submit your comments in the space provided, fold the card in half, tape the edges, and mail the completed card back to:
Regional Director, Bureau of Reclamation, Upper Colorado Region, Attention: UC-402, 125 South State Street, Salt Lake City, [redacted]-1147
Comments must be received by February 28, 2007.

From: "Jo Johnson" <canyonjo@comcast.net>
To: <gcdexpplan@uc.usbr.gov>
Date: Tue, Jan 16, 2007 3:55 PM
Subject: FW: written comments re. LTEP

I hope that the Bureau of Reclamation 's Long Term Experimental Plan (LTEP) for Glen Canyon Dam will lead to a significant change in the operation of the dam and a change in its role as the main cause of the damage suffered by our Grand Canyon.

The Grand Canyon Protection Act requires an enhanced awareness of the environmental fragility of the resource downstream. For forty years, destructive dam operations have systematically and repeatedly impacted habitat, eroded valuable sediment and sand stored on beaches and in the channel, eliminated native vegetation and native fish, and ended the natural seasonal and sometimes radical fluctuating flows.

A new, long term plan for operating the dam is overdue. Of course, the socio -economic impacts to the many stakeholders are to be factored into the analysis. The arguments must be heard. The local economies must be protected and recreational interests must have their say. The bureau must show that it plays by the rules and considers the value systems of all those interests equally.

But we all know now that the Bureau of Reclamation doesn't consider any group's values as important as the hydropower industry's. The Bureau has caved in to the political pressure and lobbying and propaganda exercised by the Western Area Power Administration and its powerful backers. The hydropower industry's arrogance is amazing: they justify their need to fill the reservoir by claiming to be looking out for our long term electricity needs. When beach-building flows are proposed, word is handed down from above to delay approval until its too late in the season. When alternatives to the status -quo operations of the hydroplant (like steady flows or seasonally adjusted flows) are suggested, they are dismissed as non-realistic , anti-profit, anti-business, anti-development minorities who don't share the same values as the industry-namely more profit from peaking power operations at Glen Canyon Dam.

So that's what we are up against. Its our value system against theirs. Bureau of Reclamation's choice is actually quite simple: protect the resource downstream or protect the profits of the hydropower industry.

Doug Ross

1880 Del Rosa Ct.

Boulder, Colorado 80304

Rug c/o canyonjo@comcast .net

From: "Douglas Karafa" <dkarafa@cleanwatercoalition.com>
To: <GCDExpPlan@uc.usbr.gov>
Date: Fri, Feb 23, 2007 11:26 AM
Subject: Written Comments on EIS for Long-Term Experimental Plan

Please find attached to this email written comments from the Clean Water Coalition regarding the subject EIS. Comments will also be sent via Fax and regular mail.

Thank you for the opportunity to comment.

Douglas W. Karafa
General Manager
Clean Water Coalition
Telephone (702) 319-4433
Fax (702) 319-4445
dkarafa@cleanwatercoalition.com

CC: "Jim Devlin" <jdevlin@cleanwatercoalition.com>, "Kelly Wright" <kwright@cleanwatercoalition.com>, "Carrie Stewart" <cstewart.zephyr@cox.net>

CleanWater COALITION
Solutions for Clean Water Management

150 N. Stephanie Street, #130 ❖ Henderson, NV 89074 ❖ (702) 319-4433
www.cleanwatercoalition.com

Regional Director
Bureau of Reclamation
Upper Colorado Region
Attention: UC-402
125 South State Street
Salt Lake City, Utah 84138-1147

Subject: Comments regarding the Environmental Impact Statement for the Adoption of a Long-Term Experimental Plan for the Future Operation of Glen Canyon Dam and Associated Management Activities.

Dear Regional Director:

The Clean Water Coalition (CWC) is a Joint Powers authority in Southern Nevada which is currently planning for the construction of a Systems Conveyance and Operations Program (SCOP) to transport highly treated wastewater effluent from its four member agencies to a new location near the Boulder Islands in Lake Mead. The CWC's four member agencies are the Clark County Water Reclamation District and the Cities of Las Vegas, Henderson, and North Las Vegas. The CWC completed a Final EIS regarding the SCOP in October 2006. The CWC's highest priority in the design and construction of the SCOP is the protection of water quality in Lake Mead, for drinking water, recreation and downstream users. As part of our EIS process the CWC has spent millions of dollars collecting and analyzing water quality data, which then have been used in a three-dimensional computerized water quality model of the Boulder Basin of Lake Mead. This three-dimensional model, known as the ELCOM-CAEDYM Model, analyzes both physical effects such as mixing, currents, and conservative tracers, as well as calculating biological effects, notably algal growth. Input from upstream of the Boulder Basin of Lake Mead is one of the key factors in predicting future water quality.

Over the course of the last year, the CWC has expanded the ELCOM-CAYDEM Model beyond the Boulder Basin to include all of Lake Mead up to the confluences of the Muddy, Virgin, and Colorado Rivers. Although this modeling effort is in its early stages, it is clear that changes in temperature, salinity, sediments and nutrients entering Lake Mead from the Colorado River below Glen Canyon Dam can have effects that reach all the way to Hoover Dam. It appears that the proposed EIS for the Long Term Experimentation for the Future

Operations of Glen Canyon Dam is focused on effects downstream of Glen Canyon Dam in the Grand Canyon National Park and Glen Canyon National Recreation Area. No mention is made of effect of anything downstream from there.

The CWC believes that there will likely be effects to water quality from the experimental operations that will reach into Lake Mead, and even to the Boulder Basin of Lake Mead. We respectfully request that the Environmental Impact Statement for the Adoption of a Long-Term Experimental Plan for the Future Operation of Glen Canyon Dam and Associated Management Activities assess direct and indirect impacts to water quality beyond the Grand Canyon and Glen Canyon National Recreation area to include affects in Lake Mead, and the Boulder Basin of Lake Mead. Additionally, the cumulative impacts analysis conducted for the Long Term Experimental Plan EIS should consider the past, present, and reasonably foreseeable actions occurring, or planned to occur, along the Colorado River from Glen Canyon Dam to Hoover Dam. The CWC understands that developing a comprehensive list of actions located in such a large area is difficult. However, slight variations in water temperature, salinity, sediments, and nutrients caused by the proposed long-term experiments may result in significant water quality changes when combined with other actions occurring along the Colorado River and in Lake Mead. Therefore, every effort should be made to identify related actions and adequately evaluate the cumulative impacts that may result from implementation of the proposed action.

Thank You,

Douglas W. Karafa
General Manager

Contact Information:
Clean Water Coalition
150 N. Stephanie St.
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Henderson, NV 89074
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From: <drewbrennan@gmail.com>
To: <GCDExpPlan@uc.usbr.gov>
Date: Thu, Jan 25, 2007 5:56 PM
Subject: LTEP EIS Scoping Comments

Dear Mr. Gold,

Thank you for the opportunity to submit the following scoping comments for the Environmental Impact Statement on the Long-term Operations for the future operations of Glen Canyon Dam. The river ecosystem in Grand Canyon National Park has suffered immensely over the past forty years due to the operations of Glen Canyon Dam, and it's vital that a fresh look at the problem be undertaken. I have concerns, however, that the EIS as envisioned is destined to fail in this regard unless a number of critical issues are addressed.

First, I would like to express my tremendous dismay with the Department of Interior's mishandling of the recovery efforts in Grand Canyon National Park over the past 40 years, and that the information presented so far by the Bureau of Reclamation indicates that this EIS promises more of the same.

While new plans for ongoing investigation and experimentation can be beneficial, they are useless amidst a backdrop where the commitment to implement those plans is virtually non-existent. We've already experienced this with the completion of the first EIS twelve years ago, and there's nothing outlined in the purpose and need for this EIS process to indicate things will be any different once this process concludes. For this exercise to yield any meaningful outcome, the EIS process must be reconceived incorporating the following:

1. Restructuring the focus of the EIS on the recovery.

The principal objective should not be the long-term operation of Glen Canyon Dam, but the ingredients necessary to bring about the recovery and preservation of endangered species within the Colorado River corridor of Grand Canyon National Park. While such objectives may not be mutually exclusive, this has yet to be proven, and as such, one should precede the other. The focus must first address the ingredients necessary to restore the natural process to Grand Canyon's river ecosystem, and secondly how, and at what costs, can the Glen Canyon Dam/Lake Powell reservoir system be operated in order to achieve this. The restoration ingredients must include:

The return of river flows consistent with the Colorado River's natural discharge into Grand Canyon

The re-establishment of a water temperature regime consistent with seasonal temperature variations of the Colorado River in Grand Canyon.

The re-establishment of sediment inputs into Grand Canyon consistent with the amount that would be received in a dam-free environment.

The elimination of non-native species, which have taken hold in the artificial riverine environment created by Glen Canyon Dam operations.

2. Evaluate the Decommissioning of Glen Canyon Dam.

The no-dam alternative must be evaluated as one means of achieving the restoration of the natural process necessary for the recovery and preservation of endangered species in Grand Canyon's river corridor. The no-dam alternative provides a valuable base line from which to evaluate other operational alternatives. Additionally, in light of the climate and human induced changes affecting flows into Lake Powell, and thus the viability of the dam to meet perceived water supply and hydroelectric benefits, BoR has additional incentive to examine a decommissioning or no-dam alternative consistent with the Council on Environmental Quality guidelines.

3. Replace the Working Groups of the Adaptive Management Program.

Despite being given specific instructions twelve years ago as outlined in the 1995 EIS on Glen Canyon Dam operations, the Glen Canyon Dam Adaptive Management Program (AMP) has failed to deliver in almost every aspect, causing Grand Canyon's river ecosystem to endure further damage. Many of AMP's failings were spelled out in the United State's Geological Survey's SCORE Report of October 2005. It was precisely these failings that have compelled BoR to undertake this new EIS process as part of its settlement agreement with environmental groups last year. Absent any structural changes to the AMP, any recommendations coming out of this EIS process will be of little value, as there are no mechanisms to ensure they won't be ignored as were those from the EIS twelve years ago.

Dominated by water supply and hydroelectric power interests, it's not surprising that the AMP has been intransigent toward addressing the true needs for endangered species recovery in Grand Canyon. Scientific, not political and commercial interests, should be the sole advisors to the Secretary ofInterior on how Grand Canyon's river ecosystem should be studied, monitored and managed consistent with the recovery objectives.

Therefore, the AMP should be replaced by an open source and independent body of research and advisory scientists, where the monitoring and research data are consistently and thoroughly peer-reviewed prior to formulating any recommendations to the Secretary of Interior.

We're closing in on 50 years of ecological destruction in Grand Canyon National Park due to the operations of Glen Canyon Dam. For much of this time the public has been asking that this be remedied. We continue to lose valuable time and species as the BoR procrastinates and resists the public's mandate to put the resource first. While there are plenty of substitutes to achieve the benefits Glen Canyon Dam may provide, there will never be another Grand Canyon. It's time for the BoR to stop thwarting the public's interest to protect it.

Sincerely,

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THE STATE OF ARIZONA
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December 29, 2006

Mr. Randy Peterson
Bureau of Reclamation
Upper Colorado Region Office
125 South State Street
Salt Lake City, UT 84318-1147

RE: Notice of Intent to Prepare an Environmental Impact Statement (Glen Canyon Dam)

Dear Mr. Peterson:

Consistent with 40 CFR 1501.6, the Arizona Game and Fish Department is formally requesting cooperating agency status in the Glen Canyon Dam Environmental Impact Statement process. As you know, the Arizona Game and Fish Department is a member of the Glen Canyon Dam Adaptive Management Program, was a cooperating agency on the March 1995 EIS on Operation of Glen Canyon Dam, and has management authority and responsibility for fish and wildlife within the state of Arizona. The Department is willing to provide expertise in fish and wildlife management to the process through Mr. Bob Broscheid, Assistant Director, at the letterhead address. Thank you, in advance, for your consideration of this request.

Sincerely,

Duane L. Shroufe
Director

cc: Bob Broscheid, Assistant Director of Wildlife Management Division, AGFD

DLS:bp